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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,793	09/10/2003	Mark R. Frye	82058-0013	1829

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EXAMINER

LEWIS, KIANDEA CHARLE

ART UNIT	PAPER NUMBER
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3772

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/658,793

Applicant(s)

FRYË ET AL.

Examiner

Kiandra C. Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-31, 33, 34, 37, 39, 67 and 68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 67 and 68 is/are allowed.
- 6) ☒ Claim(s) 22-31, 33, 34, 37 and 39 is/are rejected.
- 7) ☐ Claim(s) 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made:

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 22, 29, 30, 33, 34, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nicastro (GB 1185199).

5. **As to claims 22**, GB 1,185,199 discloses a portable apparatus for converting liquid oxygen (LOX) in gaseous form or breathing gas. He discloses a portable LOX apparatus (**Fig. 1**),

a portable container (**5**) that is capable of receiving and transferring LOX (**pg 2, lines 45-48**)

through a transfer connector (**72,33**). The device further has another transfer connector (**48,12**) that is capable of transferring oxygen gas to an oxygen delivery device. Nicastro also discloses

an economizer valve (**30**) that balances the gaseous and liquid oxygen withdrawal (**page 2, lines 70-78**) and

a conserving device (**36**).

The prior art does not specifically teach that the apparatus can hold 1 pound of LOX when fully charged or that it can last approximately 10 hours. However, the reference does state that the use of the oxygen delivery device is intended for miners (**page 3, lines 97-101**). If they are to hold this device on their back while working it would be obvious to one having ordinary skill in the art at the time of the invention that the apparatus must be light in weight and must last a long period of time for the purpose of ensuring the miner's safety as well as not posing a burden on them while they carry out their work activities. To use such a device for persons with illnesses requiring the

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transmittal of oxygen would be obvious so that they may continue their normal daily routines without the burden of a heavy device or constantly refilling the device.

6. **As to claim 29**, Nicastro discloses a vent valve (34).

7. **As to claim 30**, Nicastro discloses all of the limitation of the base claim as but does not explicitly state that the vent valve may be open when the Lox container is being filled. However, from the embodiment disclosed in and the specification it can be seen that when the tank is being filled through one of the conduits the vent valve is in such a configuration that it may or may not release any gases or liquids because there is a series of valves that would first have to be opened in order for the vent valve to disperse any particulates. Therefore it would be obvious to one having ordinary skill in the art at the time of the invention that the valve can be opened or closed during the filling of the tank without changing the function of the apparatus.

8. **As to claim 33**, Nicastro teaches an inter-unit oxygen gas transfer connector (15).

9. **As to claim 34**, Nicastro teaches a check valve (38) that has prevents the backflow of gaseous oxygen through the inter-unit oxygen gas transfer connector.

10. **As to claim 37**, the reference does state that the use of the oxygen delivery device is intended for miners (page 3, lines 97-101). If they are to hold this device on their back while working it would be obvious to one having ordinary skill in the art at the time of the invention that the apparatus must be light in weight, no more than 5 pounds for the purpose of not posing a burden on them while they carry out their work activities.

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11. **As to claim 39**, the reference does state that the use of the oxygen delivery device is intended for miners (**page 3, lines 97-101**). The job function of a miner is tedious and requires the workers to be in a mine for a long period of time. They would not be able to constantly refill their oxygen delivery device or be able to monitor it while performing such a dangerous task. Therefore it would be obvious to one having ordinary skill in the art at the time of the invention that the apparatus could have a withdrawal rate of about 2 liters per minute with a LOX use rate up to about 1/12 pounds per hour for the purpose of providing a maximal use of the device using the leave mount of LOX. To use such a device for persons with illnesses requiring the transmittal of oxygen would be obvious so that they may continue their normal daily routines without the burden of a heavy device or constantly refilling the device.

12. Claims 23, 24, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nicastro (GB 1185199) in view Andonian (U.S. 5,357,758).

13. **As to claim 23**, Nicastro discloses an economizer valve (30) that opens to allow oxygen gas from a gaseous headspace (9) to pass through (**page 2, lines 72-74**) when the pressure exceeds a predetermined threshold level. Nicastro does not explicitly state that the economizer valve is otherwise closed to allow oxygen gas to pass through. Andonian discloses a cryogenic fluid Dewar container for supplying gas to a patient or any user on demand. Andonian then goes on to teach the use of an economizer valve (88) to move liquid and/or gas held inside the inner shell directly to the second

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exothermic heat energy conduction means when the internal pressure exceed a predetermined level; i.e., the economizer valve serves as a bypass loop (**col. 5, lines 54-65, col. 6 lines 1-21**). Andonian teaches that the economizer valve allows oxygen gas from a gaseous head-space to pass through when the pressure of oxygen gas in the container exceed a predetermined level and otherwise is closed and allows oxygen gas from evaporated LOX to pass through (**col. 9, lines 4-59**). Nicastro and Andonian are analogous art because they are from a similar problem solving area of dispensing gas to a person in an efficient and non-burdensome manner. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the economizer valve for the purposes as taught in Andonian in the invention of Nicastro. The motivation for this modification would have been for the purpose of keeping the pressure within the device low to ensure that the weight of the device is minimal (**col. 1, lines 40-45**). Therefore, it would have been obvious to combine Nicastro with Andonian to obtain the invention as specified in claim 23.

14. **As to claim 24**, in the above combination Andonian teaches that the apparatus further comprises a liquid withdrawal conduit (**12**) and a gaseous withdrawal conduit (**33**) that are in communication with the interior of the container.

15. **As to claim 26**, Nicastro discloses a withdrawal warming coil (**26**).

16. **As to claim 27**, the above combination teaches essentially all of the limitations except for wherein an inner diameter of said liquid withdrawal warming coil is greater than the inner diameter of said liquid withdrawal conduit. However, Applicant on page

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11, lines 5-6 discloses that the inner diameter of liquid withdrawal warming coil **may be** greater than that of the liquid withdrawal conduit implying that such feature is not essential and/or necessary to the invention. Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention that the liquid withdrawal warming coil as taught by the above combination would perform equally as well to withdraw the liquid.

17. **As to claim 28**, Nicastro discloses an economizer with a relief valve **(31)** as does Andonian **(86)**.

18. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nicastro (GB 1185199) in of Leonard et al. (U.S. 4,211,086)

19. **As to claim 31**, Nicastro teaches essentially all of the limitation except for a demand flow control device for adjustment of gas flow through said portable-unit oxygen gas transfer connector. However, Leonard et al in a LOX breathing system teaches a demand flow control device **(43,68)** so that the user can control the flow of oxygen gas that is to be consumed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a demand flow control device as taught by Leonard et al. so that the user can control the flow of oxygen gas that is to be consumed.

Response to Arguments

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20. Applicant's arguments filed 12/21/2006 have been fully considered but they are not persuasive. Applicant argues that Nicastro does not include an economizer valve however it is apparent to the examiner that valve as disclosed by Nicastro can be used just as the valve of the claimed invention. The claimed invention as disclosed by Nicastro has the same structure as the claimed invention. The action of minimizing venting by balancing gaseous and liquid oxygen withdrawal is merely intended use. The Applicant states in the written description that the economizer valve can be set at any pressure level (pg 10, lines 15-27). The valve of Nicastro is capable of being at various settings for pressure regulating. Applicant further admits in arguments that the valve provides uniform and steady pressure (pg 10). It is viewed by the examiner that if the valve is keeping the pressure steady it must be balancing the gaseous and liquid oxygen withdrawal because otherwise the pressure would not be steady.

Allowable Subject Matter

21. Claims 25 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. Claims 67 and 68 are allowed.

Conclusion

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23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiandra C. Lewis whose telephone number is 571-272-7517. The examiner can normally be reached on Mon-Thurs 9AM-6PM and alternating Fridays 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia Bianco can be reached on 571-272-4940. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCL

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3/15/07